Mrs. Graf

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Engineering

M O N T H L Y N E W S L E T T E R

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A copy of Bureau Memorandum No. 34 is being sent to each employee who comes within the Retirement Act, advising him that under the revised law he may name a beneficiary to receive the amount to his credit in the retirement fund at the time of his death, and telling the procedure to follow.

According to Raymond R. Drake early winter winds have started severe soil blowing in the vicinity of Hays, Kansas. On Sunday, November 4, the air was so heavily charged with wind blown soil that traffic was halted on roads northwest of Hays.

A.T. Holman spent the week ending October 20 in Columbia, Mo. where he attended meetings scheduled on the Farm Week Program of the University of Missouri. Among the discussions presented were: "Practical Farm Lessons from the Erosion Survey of Missouri" by Dr. L. D. Baver, "Methods for the Control of Large Gullies" by Professor J. C. Wooley, and "The Terrace Program You Should Follow" by G. E. Martin, Extension Engineer.

P. C. McGrew recently established bench marks and took cross sections in the drainage ways above two earth soil saving dams, each 10 feet high and 50 feet long. The dams are located on the State Experiment Station at Moro, Oregon. These measurements will be repeated annually and will furnish data on soil losses from agricultural lands in this region where no similar measurements have ever been made.

Field work on a location and topographic stadia survey of the La Crosse station has been completed, by F. E. Hardisty. He has obtained approval of an F.E.R.A. project whereby two men will be furnished to the Station for a period of five months to complete computation and plotting of the field notes on this survey and other office work.

H. S. Riesbol reports that the 4.2-inch rain which fell at the Guthrie Station on September 9 and 10 with a maximum 5-minute intensity of 5.04 inches caused soil losses from comparable terraced and unterraced areas as follows: A level terrace 650 feet long with 4-foot vertical interval lost 0.68 ton of soil per acre and 66.7 per cent of the rainfall; unterraced Plot 13 has the same soil, slope, and cover but lost 23.2 tons of soil per acre and 72.1 per cent of the rainfall. The unterraced field in this one rain lost 34 times as much soil as the terrace, or as much as the terrace would lose in 15 normal years.

W.W. McLaughlin returned to the Berkeley office from Washington, D.C., the latter part of October, stopping en route in Texas, Arizona, and southern California.

The efficiency of a permanent furrow irrigation system in reducing run-off and erosion in citrus orchards near San Dimas and Pomona, in southern California, was observed by Colin A. Taylor during a 5-inch rain on October 17-18. The intensity of this rain was the highest ever recorded in that vicinity in October, and very few groves had cover crops established or were prepared for such a rain. Under the usual methods of tillage, run-off and serious erosion was quite general during this storm. Of three orchards where a permanent furrow system was in use, in the first there was little run-off and no erosion; in the second, which was being irrigated when the rain started, there was some erosion but the eroded material was caught in soil-saving checks at the ends of the furrows and the run-off water was desilted in vegetated basins; and in the third the run-off from the center furrows was diverted into the more absorptive furrows. It appears probable that the permanent furrow system developed by Mr. Taylor, with diversions from the harder center furrows onto the more absorptive soil along the tree lines, can be used to greatly reduce or even entirely eliminate run-off and erosion from groves on the recent alluvial soils of that area.

After an absence of approximately three months spent as advisor to the Regional Engineer, F.E.R.A., on water conservation and irrigation problems in North and South Dakota, M.R. Lewis returned to his headquarters at Corvallis, Oregon, October 17.

A progress report on Evaporation Investigations carried on since July, 1932, at the Baldwin Park Station, Los Angeles County, Calif., was submitted by A.A. Young. This study, carried on cooperatively with the Water Resources Branch of the U.S. Geological Survey, Los Angeles County Flood Control District, Pasadena Water Department, San Gabriel Valley Protective Association, and California State Division of Water Resources, is for the primary purpose of correlating the various evaporation studies being conducted by different agencies in the South Coastal Basin. Special attention is being given to the effect of various types and sizes of evaporation pans on rate of evaporation. The study is of importance to engineers and others interested in storage of water for irrigation and hydroelectric projects.

In connection with the Kootenai River project, L.T. Jessup attended the hearing before the International Joint Commission held at Ottawa, Canada, relative to application of the West Kootenay Power and Light Co., Inc., for storage in Kootenay Lake. Mr. Jessup also made a trip to Washington, D. C., where he spent several days conferring with representatives of the U. S. Geological Survey and the Department of State concerning the Kootenai project.

The F.E.R.A. investigation of the possibility of providing storage to supplement the supply of water for irrigation of the La Plata Basin in Colo. was completed by Carl Rohwer and a report prepared. It was found that two reservoirs would have to be built in order to make the most efficient use of the water available. Sites for reservoirs were found and the foundation materials of the dams were investigated. As a result of the investigation it was concluded that both reservoir sites were feasible. It was recommended

that in case only one could be built with funds available, preference should be given to the upper one which would be cheaper to build.

A progress report of Irrigation Data Gathered at the U.S. Yuma Field Station near Bard, Calif., for 1933, in cooperation with the Division of Western Irrigation, Bureau of Plant Industry, was submitted by Dean W. Bloodgood. The main objective of the experimental undertaking at the Yuma Field Station by the Division of Western Irrigation consists of the rotation of crops and variety tests. Through cooperation with our Bureau, the investigations have been extended to include consumptive use of water by various farm crops and moisture penetration studies. The information obtained may be expected to be of use in future irrigation development and practices when the All-American Canal is completed. The data may also be applied to other areas where climatic conditions are similar to those near Yuma, which is generally known as one of the hottest agricultural sections in the United States.

Chas. A. Bennett spent November 12 and 13 in Washington conferring on research problems.

J. S. Townsend of the Bureau of Plant Industry visited Stoneville en route from Arizona to Washington, D.C., and discussed cooperative ginning investigations on long staple cotton with Chas. A. Bennett and F.L. Gerdes.

An article by Chas. A. Bennett entitled "Care and Maintenance of Gins at the Close of the Season" was published in the November issue of THE COTTON GINNERS' JOURNAL.

R.B. Gray spent November 5 at Stoneville, Miss., viewing the performance of an experimental combine working in soybeans. This machine, which cuts a 5-foot swath and has a cylinder the full width, appears to have promise of meeting the severe requirements of soybean harvesting in that area. The balance of the week Mr. Gray spent at Auburn, Ala., in connection with the Farm Tillage Machinery Laboratory. During his stay at Auburn, Mr. Gray and Mr. Dieffenbach, of Albany, Ga., conferred on matters pertaining to the pecan spraying project.

O. K. Hedden reported at Kansas City November 2 to give engineering assistance in connection with the processing of forage for use as stock feed in the drought-stricken areas. The processing consists of handling and mixing molasses with stover sent in from other sections of the country.

E.D. Gordon reports that with the installation of the manifold within the experimental tower dryer for forage, at Jeanerette, LA., they have been able to get a more satisfactory operation. The manifold serves to distribute the hot, drying gases for a distance of about 12 feet in the height of the dryer.

The building in connection with the Farm Tillage Machinery Laboratory at Auburn was completed and formally accepted November 10. This building is 105 feet long and approximately 36 feet wide, and is two stories high on

the rear with a three story office section across the front. It contains a small laboratory, a drafting room, two offices with cupboards and vaults for storing records and supplies, garage space for storing trucks and cars, a shop 34 feet by 60 feet, and a storage space 34 feet by 85 feet with rails in the floor similar to those on the plot walls for storing the power car and other equipment used on the plots. A dolly car across the end of the plots is arranged for transferring the equipment from one plot to another or from the rails on the plots to the rails in the building. Contracts were received and the first soil for filling the plots was moved to Auburn November 6. Approximately two plots have now been filled. J.W. Randolph is in the field checking up on the soils being loaded to freight cars for delivery to the Farm Tillage Machinery Laboratory. He reports that the weather has been very favorable for the work thus far.

In a report recently received from E.M. Dieffenbach, Albany, Ga., on tests made for height of spray with several representative pecan guns, he states that the diameter of aperature and quantity of spray delivered are more important factors than the make or type of gun.

During the first week in November, E.M. Mervine tested the most recently built Scott-Viner beet harvester at Van Wert, Ohio. These tests indicate that the machine is commercially acceptable, and that beets may be harvested at a cost of approximately one-half that now paid by the beet grower to beet-field laborers. The company's plan is to build a few machines to be placed in the farmers' hands during the next beet harvest. The capacity of the machine is about .4 of an acre per hour.

S. W. McBirney reports that the experimental work on beet lifting equipment has been completed for the season. The beet harvest began about July 1 and was finished around November 15. It has been a very favorable harvest season, work having been held up only one day because of rain. Last season, because of a later start and some delays, the beet harvest was not completed until early January.

W.M. Hurst has prepared a paper for presentation at the winter meeting of the Farm Machinery Division, A.S.A.E., dealing with the need for small combined harvester-threshers.

In cooperation with the Bureau of Entomology and Plant Quarantine, D.A. Isler reports that the push-type stalk shaver developed at Presidio is being used in the field cleanup campaign.

Illustrative material showing the activities of the Division of Mechanical Equipment will be on exhibition at the fertilizer machinery laboratory Arlington Farm, Va., during the Land Grant College and other meetings in Washington the latter part of November. Arrangements have been made to exhibit and demonstrate the experimental machinery developed in connection with the investigations of fertilizer distributors and grain harvesting and cleaning machinery. The rammed-earth wall construction and the tests with various coatings, which are a part of the laboratory building, will also be available for inspection.

The annual meeting of the Joint Committee on Fertilizer application was held in Washington Nov. 21. The results of fertilizer-placement studies with beans, cabbage, corn, cotton, potatoes, sugar beets, tobacco and tomatoes at 54 locations in 19 States were discussed. The Bureau is cooperating in 51 of these studies. Messrs. Cumings, Sharp, and Redit discussed certain phases of the work. The principal developments will be outlined in the December NEWS LETTER.

The publications of the Department originating in this Bureau, including those in cooperation with other bureaus, issued since July 1 are as follows:

Machinery for Dusting Cotton, F.B. 1729
Farmhouse Plans, F.B. 1738
Pile Trestles as Channel Obstructions. T.B. 429
Studies of the Irrigation of Pear Orchards on Heavy Soil near Medford, Oregon. T.B. 432
Application of Steam in Sterilization of Soils. T.B. 443
Agronomic Evaluation Tests on Mechanical Blocking and Cross Cultivation of Sugar Beets. Circ. 316